



SEQUENCE LISTING

<10> BARBAS, Carlos
STEGE, Justin
GUAN, Xueni
DALMIA, Bipin

<120> METHODS AND COMPOSITIONS TO MODULATE
EXPRESSION IN PLANTS

<130> 27801-20014.20

<140> 09/765,555

<141> 2001-01-19

<150> 09/620,897

<151> 2000-07-21

<150> US 60/177,468

<151> 2000-01-21

<160> 78

<170> FastSEQ for Windows Version 4.0

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<223> Promoter CsVMV

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<223> Zinc finger protein 2C7 binding site

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<223> Promoter pc7rbTATA

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<223> pND3008 coding region

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 <220>
 <223> 6X2C7 binding site

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 <210> 7
 <211> 18
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> ZFPap3

 <400> 7
 gatggagttg aagaagta 18

 <210> 8
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> ZFP from -85 to -65

 <400> 8
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 <210> 9
 <211> 18
 <212> DNA
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 <220>
 <223> ZFPm1 from -68 to -85

 <400> 9
 tgagaggagg aaggaggc 18

 <210> 10
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 <212> DNA
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 <223> ZFPm2 from -65 to -82

 <400> 10
 gagtgagagg aggaagga 18

 <210> 11
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> ZFP from 294 to 317

<400> 11
gccaactact acggetccct cacc 24

<210> 12
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> ZFPm3 from 311 to 294

<400> 12
ggagccgtag tagttggc 18

<210> 13
<211> 18
<212> DNA
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<223> ZFPm4 from 317 to 300

<400> 13
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<223> Partial sequence of pMal-m1 and zinc finger
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<211> 3300

<212> DNA

<213> Artificial Sequence

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<223> Partial sequence of pMal-m2 and zinc finger protein ZFPm2

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<210> 16

<211> 3300

<212> DNA

<213> Artificial Sequence

<220>

<223> PARTIAL sequence of pMal-m3 and zinc finger protein ZFPm3

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<210> 17

<211> 3300

<212> DNA

<213> Artificial Sequence

<220>

<223> Partial sequence of pMal-m4 and zinc finger protein ZFPm4

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<210> 18

<211> 3300

<212> DNA

<213> Artificial Sequence

<220>

<223> Parial sequence of pMal-Ap3 and zinc finger protein ZFPap3

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<211> 58

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<213> Artificial Sequence

<220>

<223> Oligo m12

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<211> 64

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligo m34

<400> 20

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<210> 21

<211> 52

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligo Ap3

<400> 21
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<210> 22
 <211> 50
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 <213> Artificial Sequence

<220>
 <223> Oligo NRI-1

<400> 22
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 <223> Oligo NRI-2

<400> 23
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 <223> Oligo c5p1-g

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 <223> Oligo c5p3-g

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 <223> Primer Ap3-F

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 <210> 31
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 <220>
 <223> Primer NZlib5'

 <400> 31
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 <210> 32
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 <223> Primer Ap3f4-R

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 <210> 34
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 <210> 35
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 <220>
 <223> PCR primer for AP3 (forward)

 <400> 35
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 <210> 36
 <211> 20
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 <220>
 <223> PCR primer for AP3 (reverse)

 <400> 36
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 <210> 37
 <211> 44
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 <220>
 <223> Oligonucleotide

 <400> 37
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 <210> 38
 <211> 184
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> ZFPm1

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Thr	His	Thr	Gly	Glu	Lys	Pro	Tyr	Lys	Cys	Pro	Glu	Cys	Gly	Lys	Ser		
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Phe	Ser	Gln	Arg	Ala	His	Leu	Glu	Arg	His	Gln	Arg	Thr	His	Thr	Gly		
	50					55					60						
Glu	Lys	Pro	Tyr	Lys	Cys	Pro	Glu	Cys	Gly	Lys	Ser	Phe	Ser	Gln	Ser		
65					70					75				80			
Ser	Asn	Leu	Val	Arg	His	Gln	Arg	Thr	His	Thr	Gly	Glu	Lys	Pro	Tyr		
			85						90					95			
Ala	Cys	Pro	Glu	Cys	Gly	Lys	Ser	Phe	Ser	Arg	Ser	Asp	Asn	Leu	Val		
		100						105					110				
Arg	His	Gln	Arg	Thr	His	Thr	Gly	Glu	Lys	Pro	Tyr	Lys	Cys	Pro	Glu		
		115					120						125				
Cys	Gly	Lys	Ser	Phe	Ser	Arg	Ser	Asp	Asn	Leu	Val	Arg	His	Gln	Arg		
	130					135					140						
Thr	His	Thr	Gly	Glu	Lys	Pro	Tyr	Lys	Cys	Pro	Glu	Cys	Gly	Lys	Ser		
145					150					155				160			
Phe	Ser	Gln	Ala	Gly	His	Leu	Ala	Ser	His	Gln	Arg	Thr	His	Thr	Gly		
			165						170					175			
Lys	Lys	Thr	Ser	Gly	Gln	Ala	Gly										
			180														

<210> 39
 <211> 184
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> ZFPm2

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			20					25					30				
Thr	His	Thr	Gly	Glu	Lys	Pro	Tyr	Lys	Cys	Pro	Glu	Cys	Gly	Lys	Ser		
		35					40					45					
Phe	Ser	Gln	Ser	Ser	Asn	Leu	Val	Arg	His	Gln	Arg	Thr	His	Thr	Gly		
	50				55					60							
Glu	Lys	Pro	Tyr	Lys	Cys	Pro	Glu	Cys	Gly	Lys	Ser	Phe	Ser	Arg	Ser		
65					70					75				80			
Asp	Asn	Leu	Val	Arg	His	Gln	Arg	Thr	His	Thr	Gly	Glu	Lys	Pro	Tyr		
			85						90					95			
Ala	Cys	Pro	Glu	Cys	Gly	Lys	Ser	Phe	Ser	Arg	Ser	Asp	Asn	Leu	Val		
		100						105					110				
Arg	His	Gln	Arg	Thr	His	Thr	Gly	Glu	Lys	Pro	Tyr	Lys	Cys	Pro	Glu		
		115					120						125				
Cys	Gly	Lys	Ser	Phe	Ser	Gln	Ala	Gly	His	Leu	Ala	Ser	His	Gln	Arg		
	130					135					140						
Thr	His	Thr	Gly	Glu	Lys	Pro	Tyr	Lys	Cys	Pro	Glu	Cys	Gly	Lys	Ser		
145					150					155				160			
Phe	Ser	Arg	Ser	Asp	Asn	Leu	Val	Arg	His	Gln	Arg	Thr	His	Thr	Gly		
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Lys	Lys	Thr	Ser	Gly	Gln	Ala	Gly										
			180														

<210> 40
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 <212> PRT
 <213> Artificial Sequence

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 <223> ZFPm3

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35 40 45
Phe Ser Thr Ser Gly Ser Leu Val Arg His Gln Arg Thr His Thr Gly
50 55 60
Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser
65 70 75 80
Ser Ser Leu Val Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr
85 90 95
Ala Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Ser Leu Val
100 105 110
Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu
115 120 125
Cys Gly Lys Ser Phe Ser Asp Ser Arg Asp Leu Ala Arg His Gln Arg
130 135 140
Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser
145 150 155 160
Phe Ser Gln Ser Ser His Leu Val Arg His Gln Arg Thr His Thr Gly
165 170 175
Lys Lys Thr Ser Gly Gln Ala Gly
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<210> 41
<211> 184
<212> PRT
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<220>
<223> ZFPm4

<400> 41
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Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser
35 40 45
Phe Ser Gln Ser Ser Ser Leu Val Arg His Gln Arg Thr His Thr Gly
50 55 60
Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Asp Cys
65 70 75 80
Arg Asp Leu Ala Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr
85 90 95
Ala Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Ser Leu Val
100 105 110
Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu
115 120 125
Cys Gly Lys Ser Phe Ser Arg Ser Asp Asn Leu Val Arg His Gln Arg
130 135 140
Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser
145 150 155 160
Phe Ser Thr Ser Gly His Leu Val Arg His Gln Arg Thr His Thr Gly
165 170 175
Lys Lys Thr Ser Gly Gln Ala Gly
180

<210> 42
<211> 184
<212> PRT

<213> Artificial Sequence

<220>

<223> ZFPAp3

<400> 42

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Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser
35 40 45
Phe Ser Gln Ser Ser Asn Leu Val Arg His Gln Arg Thr His Thr Gly
50 55 60
Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser
65 70 75 80
Ser Asn Leu Val Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr
85 90 95
Ala Cys Pro Glu Cys Gly Lys Ser Phe Ser Thr Ser Gly Ser Leu Val
100 105 110
Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu
115 120 125
Cys Gly Lys Ser Phe Ser Gln Ser Ser His Leu Val Arg His Gln Arg
130 135 140
Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser
145 150 155 160
Phe Ser Thr Ser Gly Asn Leu Val Arg His Gln Arg Thr His Thr Gly
165 170 175
Lys Lys Thr Ser Gly Gln Ala Gly
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<210> 43

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Promoter 18bp 2C7

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<210> 44

<211> 7

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<223> ZFP domain

<400> 44

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<210> 45

<211> 7

<212> PRT

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<400> 45

Ser Asp Pro Gly Asn Leu Val


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 <400> 56
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<400> 62
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 <223> ZFPm2a

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 gccagccatc aacgcactca tactggcgag aagccataca aatgtccaga atgtggcaag 240
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<220>
 <223> ZFP2b

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His Thr Gly Gln Lys Pro Phe Gln Cys Arg Ile Cys Met Arg Asn Phe
          35           40           45
Ser Arg Ser Asp His Leu Thr Thr His Ile Arg Thr His Thr Gly Glu
          50           55           60
Lys Pro Phe Ala Cys Asp Ile Cys Gly Arg Lys Phe Ala Arg Ser Asp
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Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser
          35           40           45
Phe Ser Gln Arg Ala His Leu Glu Arg His Gln Arg Thr His Thr Gly
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Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser
65           70           75           80
Ser Asn Leu Val Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr
          85           90           95
Ala Cys Pro Glu Cys Gly Lys Ser Phe Ser Arg Ser Asp Asn Leu Val
          100          105          110
Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu
          115          120          125
Cys Gly Lys Ser Phe Ser Arg Ser Asp Asn Leu Val Arg His Gln Arg
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Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser
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